Fossil Energy Research Benefits

Deepwater Resources

The United States has significant **natural gas** and **oil reserves**. But many of these resources are increasingly harder to locate and bring into production.

To help meet this challenge, the U.S. Department of Energy's (DOE) **Office of Fossil Energy (FE)** over the years has amassed wide ranging expertise in areas related to deepwater resource location, production, safety and environmental protection. The goal of these activities has been to not only help overcome production and technical hurdles, but also improve the ability to drill in ever-deeper waters with greater margins of safety and environmental protection.

Only 30 years ago, "deepwater" production referred to offshore wells in water depths of several hundred feet. Today's deepwater operations are generally in the **1,000-to-5,000 foot range**, and ultra-deepwater production can occur in water depths of between 5,000 to 10,000 feet or more. According to the **Minerals Management Service (MMS)**, there are currently 46 permanent deepwater platforms in the Gulf of Mexico in water depths ranging from 1,000 to 8,000 feet. Some **58 percent** of active leases in the Gulf are in deepwater areas, compared with only 27 percent in 1992 (MMS, *Deepwater Gulf of Mexico 2009* Report, page 10).

Facts About Deepwater Resources

Comprise **21 percent** (4.3 billion barrels) of total **proved crude oil reserves** (20.7 billion barrels).

Comprise **5 percent** (13.5 trillion cubic feet) of total **natural gas proved reserves** (272.5 trillion cubic feet).

Account for **32 percent** of total **crude oil production**, which was 5.5 million barrels daily in 2010.

Account for **13 percent** of total **dry gas production**, which was 22 trillion cubic feet in 2010.

The **Gulf of Mexico** is one of the most important regions for U.S. offshore and deepwater resource production. It accounts for about **30 percent** of total U.S. crude oil production and **13 percent** of natural gas production. The area produces **94 percent** of all U.S. offshore oil production and about **96 percent** of offshore natural gas.

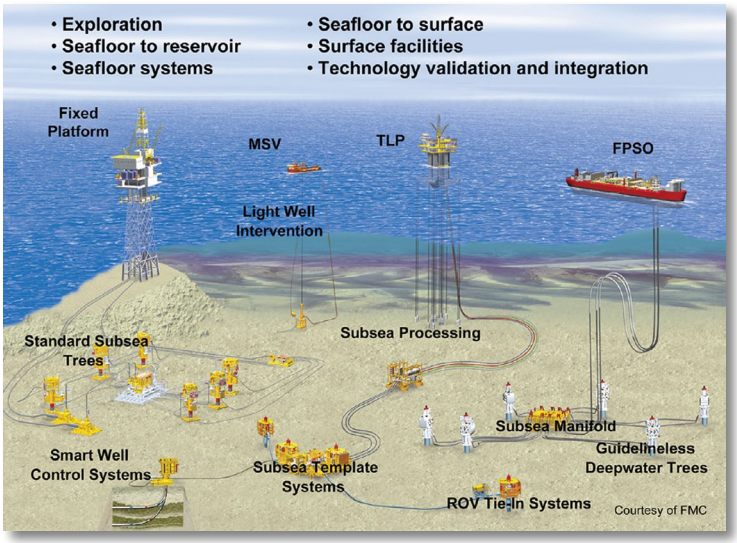
The deepwater contribution to domestic oil and natural gas supplies is expected to grow in the years ahead, assuming ongoing technology solutions to production safety and environmental challenges (see table).

Projected Long-Range Production of U.S. Offshore Resources

Commodity	Crude Oil*	Natural Gas**
2015	1.74	2.05
2020	1.84	2.78
2025	1.50	2.35
2030	1.71	2.76
2035	1.83	2.93

*Source: U.S. Energy Information Administration, Annual Energy Outlook 2011, Table A14, page 29. Lower 48 States only. * = million barrels per day; ** = trillion cubic feet.*

Ultra-Deepwater Technology



Source: National Energy Technology Laboratory, "Ultra-Deepwater and Unconventional Natural Gas and Other Petroleum Resources Research Program," Fact Sheet, July 2009.